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Application Number	09/692,075
Filing Date	October 19, 2000
First Named Inventor	Ken Harris
Art Unit	1756
Examiner Name	Angebranndt, Martin J.
Attorney Docket Number	22176.17

ENCLOSURES *(Check all that apply)*

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Remarks

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SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm Name	Houston Eliseeva LLP		
Signature	Maria Eliseeva		
Printed name	Maria M. Eliseeva		
Date	June 13, 2007	Reg. No.	43,328

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re:	Ken Harris	Confirmation No:	6304
Serial No:	09/692,075	Group:	1756
Filed:	October 19, 2000	Examiner:	Angebranndt, Martin J.
For:	Photo Definable Polyimide Film Used as an Embossing Surface		
Attorney Docket No.	22176.17		

REPLY BRIEF UNDER RULE 1.93(b)(1)

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Sir:

This is the Applicant's Reply to the Examiner's Answer of December 13, 2006.

The following summarizes Applicants' central argument and some of the principle problems with the applied combinations of references to the pending Claims.

A. CLAIM 26

A clean version of Claim 26 is reproduced below:

26. (Previously Presented) A method of transferring data from a holographic master to another surface via a seamless transfer medium comprising a polyimide material, the method comprising the steps of:

(a) providing the seamless transfer medium by casting the polyimide material on the holographic master containing the data so that an impression of

diffraction gratings of the holographic master is made on the cast polyimide material;

(b) removing the seamless transfer medium with the impression of the diffraction gratings from the holographic master ;

(c) heat curing the seamless transfer medium; and

(d) using the seamless transfer medium to emboss the data to another surface.

The IBM publication cited by the Patent Office discloses covering a zone plate with a probimide, prebaking at 85C and then exposing the probimide to light to radiation to form surface relief modulations.

Contrary to that disclosure, Claim 26 is directed to *casting* the polyimide material onto a holographic master which already contains the diffraction gratings. That master transfers the impressions of the diffraction gratings onto the cast polyimide, as claimed in Claim 26. No disclosure in the IBM publication teaches the holographic master transferring the already existing holographic diffraction gratings onto the cast polyimide.

Turning now to the Shvartsman patent, no disclosure of casting the polyimide material onto a holographic master has been found there. Shvartsman discloses "applying an optically transparent dry photohardenable film to a surface of a dimentionally stable substrate;"(Col. 8, lines 66-68, emphasis added). There is no disclosure in Shvartsman of a material being cast (casting implies application of a molten material to a mold), as well as that the material being cast on a substrate containing the data of the diffraction gratings. Embossing in Shvartsman is done by stamping the exposed surface (the opposite to the substrate). (Col. 9, lines 1-2 and Col. 2, lines 30-34). No casting, no substrate with data (holographic master) and no impression of diffraction gratings of the holographic master onto the cast polyimide material, as claimed in Claim 26, are disclosed in Shvartsman.

With regard to the Kataoka publication, the Patent office wrote that it "teaches the use of a patterned photosensitive polyimide on the interior surface of a mold."

(Examiner's Answer, page 4, first full paragraph). That teaching has nothing to do with the invention claimed in Claim 26. As shown in Fig. 1 of Kataoka and described in paragraph [0025] of the machine translation, as wall of a mold cavity is covered by a heat resistant polymer which, in turn, is covered by a polyimide (1-1, 1-2, 1-3 of Fig. 1). A mask 4 is placed on the polyimide and the structure is exposed to UV light. The portions of the material exposed to the UV light harden and become insoluble in a solvent, the non-exposed portions are removed by the solvent. Therefore, the exposed and non-exposed portions of the polyimide material create surface irregularity.

That teaching in Kataoka doesn't have anything to do with casting the polyimide material on the holographic master already containing the data comprised of the diffraction gratings, so that an impression of diffraction gratings of the holographic master is made on the cast polyimide material, as claimed in Claim 26.

It is, therefore, asserted, that the combination of the IBM publication, Shvartsman and Kataoka patents does not disclose each and every element of the invention as claimed in Claim 26. Applicant argues that Claim 26 is non-obvious over the combination of these three publications. The rejection of Claim 26 should be withdrawn and the Claim should be allowed.

B. CLAIMS 28 and 43

A clean version of Claims 28 and 43 is reproduced below:

28. (Previously Presented) A method of embossing data from a seamless embossing surface to another surfaces, said method comprising the steps of:

(a) spin coating a photodefinable polyimide material on a roller and heat pre-curing the polyimide material to form said seamless embossing surface of a target thickness;

(b) cooling said seamless embossing surface to ambient temperature;

(c) profiling said seamless embossing surface by two interfering laser beams to form diffraction patterns to define said data on said seamless embossing surface;

(d) wet developing said data on said seamless embossing surface by using a solution;

(e) heat curing of the seamless embossing surface; and

(f) embossing said another surface with said data by said seamless embossing surface.

43. (Previously Presented) A method of making a seamless profiled surface, the method comprising:

spin coating a roller with a photodefinable polyimide material and heat pre-curing the roller to form a seamless polyimide surface of a target thickness;

cooling the roller to an ambient temperature;

interfering two laser beams on the seamless polyimide surface to profile the seamless polyimide surface with diffraction patterns in a pixel-by-pixel dot matrix manner;

wet developing the seamless polyimide surface on the roller with a solution; and

heating the seamless polyimide surface on the roller to harden the surface.

With regard to Claims 28 and 43, Applicant asserts that the IBM disclosure cannot be used in rejection of that Claim. As it has been argued by Applicant, the IBM disclosure teaches away from the method claimed in Claim 28. Specifically, the whole goal of the method described in the IBM publication is to develop the surface relief modulations by thermal heating and to eliminate the wet development step after profiling. In short, the IBM disclosure teachings specifically aim to eliminate the wet development step claimed in Claims 28 and 43. Also, no disclosure of heat precuring the roller to form a target thickness of the seamless polyimide material is disclosed or mentioned in the IBM disclosure.

The Shvartsman patent discloses a dry photohardenable laminate layer firmly adhered to a substrate. (Col. 3, lines 9-51 and lines 63-64). That dry laminate layer on the substrate is then stamp-embossed with a relief and radiation cured to effect hardening.

That method in Shvartsman is so different from the methods claimed in Claim 28 and 43 – dry laminate stamp-embossed and radiation hardened – that it is absolutely not clear why a person of average skill in the art would consider that patent at all in arriving at the invention claimed in the referenced Claims. Radiation hardening in Shvartsman is achieved by photopolymerization, while the process of photodefining already polymeric polyimide is accomplished by cross linking already existing polymeric chains. These are different processes in different materials. There is no reason for anyone to consider the Shvartsman patent in coming up with the present invention as claimed.

With regard to the Fan publication, lines 5-17 on page 5, referenced by the Patent Office, teach a photosensitive thermoplastic layer (line 9) which "will repeatedly soften when heated and harden when cooled." (line 16). This is teaching away and to the contrary of the invention that requires **heating the seamless polyimide surface on the roller to harden the surface** (Claim 43) and **heat curing of the seamless embossing surface (Claim 28).** Fan also deals with photopolimerized thermoplastic materials which are different from the photodefinable polyimide as claimed in Claims 28 and 43.

Applicant would like to remind the Patent Office that for an obviousness rejection to be proper, the Patent Office must meet the burden of establishing a prima facie case of obviousness. The Patent Office must meet the burden of establishing that all elements of the invention are disclosed in the cited publications, which must have a suggestion, teaching or motivation for one of ordinary skill in the art to modify a reference or combined references.[1] The cited publications should explicitly provide a reasonable expectation of success, determined from the position of one of ordinary skill in the art at the time the invention was made.[2]

In this rejection the examiner is citing six (6) different publications, dealing with different materials, different methods, some of them explicitly teaching away from the claimed invention, some of them disclosing little bits and pieces of claimed elements here

1 *In re Sang Su Lee, 277 F.3d 1338. 61 USPQ2d 1430 (Fed. Cir. 2002).*
2 *In re Fine, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988); In re Wilson, 165 U.S.P.Q. 494, 496 (C.C.P.A. 1970);*
Amgen v. Chugai Pharmaceuticals Co., 927 U.S.P.Q.2d, 1016, 1023 (Fed. Cir. 1996);

and there in a completely different setting. None of these publications, alone or in combination with others, provide any reason for combining the publications to come up with the claimed invention. The Patent Office provided no explanation where in these combinations of six very different publications one of average skill in the art finds a reason to combine the publications, or a suggestion or motivation to do so.

Applicant asserts that the rejection is not supported by evidence and should be withdrawn. Allowance of Claims 28 and 43 and their respective dependent Claims is solicited.

C. Claims 28 and 43.

In this rejection the Patent Office adds the 7th publication (Abraham '282) in making another 103(a) rejection. Applicant continues to assert that addition of this 7th patent provides no reason or motivation to combine seven (7) references to come up with the present invention as claimed.

Specifically, the Abrahams patent teaches silvering and electroforming a profiled photoresist to produce a nickel stamper for manufacturing optical disks (CDs). (Col. 3, lines 59-64). This is the process which uses electroformed metal shims as masters for further stamping. This is exactly the process from which the present invention teaches away, as explicitly described in the background section of the present application. The fact that Abrahams talks about the dot matrix process doesn't make this patent a reference that one of average skill in the art would be motivated and have any reason to combine with six other very different references describing different materials and different processes. The Patent Office provided no explanation where in these combinations of seven very different publications one of average skill in the art finds a reason to combine the publications, or a suggestion or motivation to do so.

Applicant asserts that the rejection is not supported by evidence and should be withdrawn. Allowance of Claims 28 and 43 and their respective dependent Claims is solicited.

D. Claims 28 and 43.

In this rejection the Patent Office adds yet another two patents (Hagan '825 and Hino "469 in making yet another 103(a) rejection. Applicant continues to assert that addition of these additional patents provides no reason or motivation to combine 7 or 8 references to come up with the present invention as claimed.

In particular, none of these additional references has any suggestion that the described methods or materials can be used for interfering two laser beams on the seamless polyimide surface to profile the seamless polyimide surface with diffraction patterns, as claimed in the referenced Claims. As explained above, while the applied references talks about little pieces of claim elements here and there in completely different processes, materials and settings, no evidence was presented by the Patent Office that one of average skill in the art will have *a reason* or motivation to combine the long list of references to successfully come up with the claimed invention. Therefore, Applicant asserts that the rejection is not supported by evidence and should be withdrawn. Allowance of Claims 28 and 43 and their respective dependent Claims is solicited.

For these reasons, Applicants-Appellants believe that the above-discussed Claims, is not obvious in view of the applied references. Should any questions arise, please contact the undersigned.

Respectfully submitted,

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By _____

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Date: June 13, 2007

Clean copy of the Claims on appeal.

What is claimed is:

1. (Cancelled)
2. (Cancelled)
3. (Cancelled)
4. (Cancelled)
5. (Cancelled)
6. (Cancelled)
7. (Cancelled)
8. (Cancelled)
9. (Cancelled)
10. (Cancelled)
11. (Cancelled)
12. (Cancelled)
13. (Cancelled)
14. (Cancelled)
15. (Cancelled)
16. (Cancelled)
17. (Cancelled)
18. (Cancelled)
19. (Cancelled)
20. (Cancelled)
21. (Cancelled)
22. (Cancelled)
23. (Cancelled)
24. (Cancelled)
25. (Cancelled)

26. (Previously Presented) A method of transferring data from a holographic master to another surface via a seamless transfer medium comprising a polyimide material, the method comprising the steps of:

(a) providing the seamless transfer medium by casting the polyimide material on the holographic master containing the data so that an impression of diffraction gratings of the holographic master is made on the cast polyimide material;

(b) removing the seamless transfer medium with the impression of the diffraction gratings from the holographic master ;

(c) heat curing the seamless transfer medium; and

(d) using the seamless transfer medium to emboss the data to another surface.

27. (Cancelled)

28. (Previously Presented) A method of embossing data from a seamless embossing surface to another surfaces, said method comprising the steps of:

(a) spin coating a photodefinable polyimide material on a roller and heat pre-curing a the polyimide material to form said seamless embossing surface of a target thickness;

(b) cooling said seamless embossing surface to ambient temperature;

(c) profiling said seamless embossing surface by two interfering laser beams to form diffraction patterns to define said data on said seamless embossing surface;

(d) wet developing said data on said seamless embossing surface by using a solution;

(e) heat curing of the seamless embossing surface; and

(f) embossing said another surfaced with said data by said seamless embossing surface.

29. (Previously Presented) A method of transferring data from a first seamless surface to another surface, said method comprising the steps of:

(a) spin coating a photodefinable polyimide material on a roller and heat pre-curing a the polyimide material to form said first seamless surface of polyimide;

(b) cooling said seamless embossing surface to ambient temperature;

(c) profiling said first surface by two interfering laser beams to define said data on said first seamless surface of polyimide;

(d) wet developing said data on said first seamless surface with a solution;

(e) coating said first seamless surface of the polyimide material with a metal and applying ink to said first surface; and

(f) contacting other surfaces by said first seamless surface to transfer ink corresponding to said data to said another surface.

30. (Cancelled)

31. (Cancelled)

32. (Previously Presented) The method of Claim 28, wherein profiling said seamless embossing surface is accomplished in a pixel-by-pixel dot matrix manner.

33. (Previously Presented) The method of Claim 28, wherein heat curing of the seamless embossing surface is done at a temperature selected from a range of about 280° C to about 400° C.

34. (Previously Presented) The method of Claim 28, wherein heat curing of the seamless embossing surface is done in a nitrogen atmosphere.

35. (Previously Presented) The method of Claim 28, wherein using a solution comprises using an aqueous solution.

36. (Previously Presented) The method of Claim 28, wherein the photodefinable polyimide is a negative acting polyimide.

37. (Previously Presented) The method of Claim 29, wherein profiling said seamless embossing surface is accomplished in a pixel-by-pixel dot matrix manner.

38. (Previously Presented) The method of Claim 29, wherein heat curing of the seamless embossing surface is done at a temperature selected from a range of about 280° C to about 400° C.

39. (Previously Presented) The method of Claim 29, wherein heat curing of the seamless embossing surface is done in a nitrogen atmosphere.

40. (Previously presented) The method of Claim 29, wherein using a solution comprises using an aqueous solution.

41. (Previously Presented) The method of Claim 29, wherein the metal comprises Ni or Cr.

42. (Previously Presented) The method of Claim 29, wherein the photodefinable polyimide is a negative acting polyimide.

43. (Previously Presented) A method of making a seamless profiled surface, the method comprising:

spin coating a roller with a photodefinable polyimide material and heat pre-curing the roller to form a seamless polyimide surface of a target thickness;

cooling the roller to an ambient temperature;

interfering two laser beams on the seamless polyimide surface to profile the seamless polyimide surface with diffractions patterns in a pixel-by-pixel dot matrix manner;

wet developing the seamless polyimide surface on the roller with a solution; and

heating the seamless polyimide surface on the roller to harden the surface.

44. (Previously Presented) The method of Claim 43, wherein the photodefinable polyimide material is negative acting.